

WO 2005/018659 A2

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
3 March 2005 (03.03.2005)

PCT

(10) International Publication Number
WO 2005/018659 A2

(51) International Patent Classification⁷: **A61K 38/00**

(21) International Application Number:
PCT/US2004/027187

(22) International Filing Date: 19 August 2004 (19.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/496,970 20 August 2003 (20.08.2003) US

(71) Applicants (for all designated States except US):
NEUREN PHARMACEUTICALS, LTD. [NZ/NZ]; Level 3, 2-6 Park Avenue, Grafton, Auckland (NZ).
NEUREN PHARMACEUTICALS, INC. [US/US]; 3Bethesda Metro Center, Suite 700, Bethesda, MD 20814-5337 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GLUCKMAN, Peter** [NZ/NZ]; 78 Lucerne Road, Remuera, Auckland (NZ). **GILMOUR, Stewart** [GB/GB]; 21 Cambridge Road, Little Abington, Cambridgeshire CB16BL (GB). **VICKERS, Mark, Hedley** [GB/NZ]; 1/11 Oranga Avenue, One Tree Hill, Auckland (NZ). **BREIER, Bernhard** [DE/NZ]; 1 Edenvale Crescent, Mount Eden, Auckland (NZ).

(74) Agents: **BORSON, D., Benjamin et al.; FLIESLER MEYER LLP**, Four Embarcadero Center, Fourth Floor, San Francisco, CA 94111-4156 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SOMATOGENIC THERAPY USING A 20kDa PLACENTAL VARIANT OF GROWTH HORMONE

(57) Abstract: Embodiments of the present invention provide improved methods of treating conditions requiring human growth hormone (hGH) therapy, whereby the beneficial effects of hGH such as growth promotion and lipolysis are retained and unwanted properties are reduced or eliminated. In particular, it is directed at a method of treatment whereby the lactogenic side effects of hGH treatment are reduced. Said enhanced method includes the use of a growth hormone variant; 20kDa hGH-V in the treatment of conditions that are currently treated with hGH or that have the potential to be treated with hGH.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
3 March 2005 (03.03.2005)

PCT

(10) International Publication Number
WO 2005/018659 A3

- (51) International Patent Classification⁷: A61K 38/27, (74) Agents: BORSON, D., Benjamin et al.; FLIESLER MEYER LLP, Four Embarcadero Center, Fourth Floor, San Francisco, CA 94111-4156 (US).
- (21) International Application Number: PCT/US2004/027187
- (22) International Filing Date: 19 August 2004 (19.08.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/496,970 20 August 2003 (20.08.2003) US
- (71) Applicants (*for all designated States except US*): NEUREN PHARMACEUTICALS, LTD. [NZ/NZ]; Level 3, 2-6 Park Avenue, Grafton, Auckland (NZ). NEUREN PHARMACEUTICALS, INC. [US/US]; 3Bethesda Metro Center, Suite 700, Bethesda, MD 20814-5337 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): GLUCKMAN, Peter [NZ/NZ]; 78 Lucerne Road, Remuera, Auckland (NZ). GILMOUR, Stewart [GB/GB]; 21 Cambridge Road, Little Abington, Cambridgeshire CB16BL (GB). VICKERS, Mark, Hedley [GB/NZ]; 1/11 Oranga Avenue, One Tree Hill, Auckland (NZ). BREIER, Bernhard [DE/NZ]; 1 Edenvale Crescent, Mount Eden, Auckland (NZ).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
2 June 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/018659 A3

(54) Title: SOMATOGENIC THERAPY USING A 20kDa PLACENTAL VARIANT OF GROWTH HORMONE

(57) Abstract: Embodiments of the present invention provide improved methods of treating conditions requiring human growth hormone (hGH) therapy, whereby the beneficial effects of hGH such as growth promotion and lipolysis are retained and unwanted properties are reduced or eliminated. In particular, it is directed at a method of treatment whereby the lactogenic side effects of hGH treatment are reduced. Said enhanced method includes the use of a growth hormone variant; 20kDa hGH-V in the treatment of conditions that are currently treated with hGH or that have the potential to be treated with hGH.